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Tienhoven, P.G. van

Fisheries in the Netherlands

[S.l.]

[1915?]

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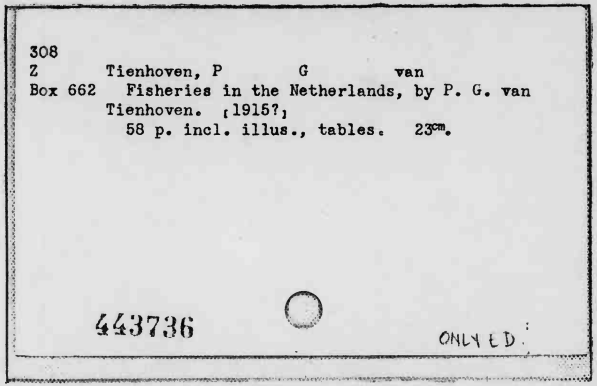

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FISHERIES IN THE NETHERLANDS

BY

P. G. VAN TIENHOVEN.

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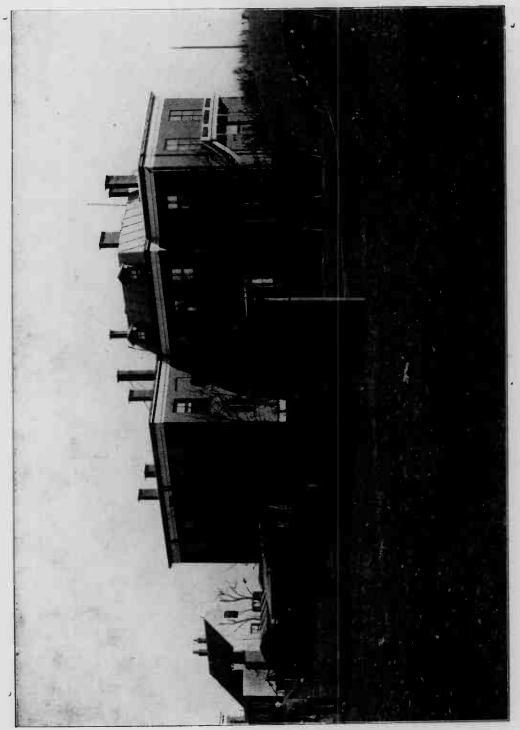

Zoölogical Station at Den Helder. ("Wonderkuil" in foreground).

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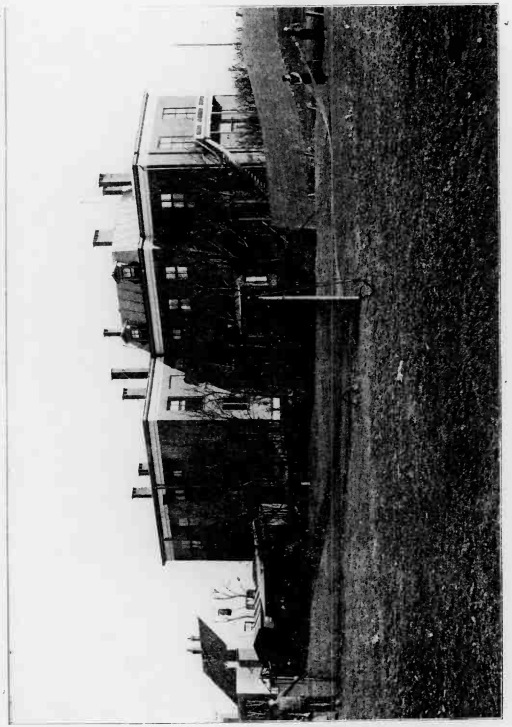
THERE is no pretence at completeness in this sketch of the Netherlands Fisheries. It is intended to give no more than a slight idea of this branch of national prosperity, so vitally important for The Netherlands, and to attract the reader's attention to a few salient points, which will give him an impression of what the fisheries mean to this country.

The water has ever been The Netherlands' greatest friend and foe, and one glance at the map convinces us that next to Navigation, Fisheries were bound to constitute a source of prosperity. The North Sea encloses The Netherlands on two sides (on the North and the West), whilst in the country itself there is moreover the Zuyder Zee, covering an area of 357.000 H. A. (below Wieringen). This latter consists of brackish water and is of great importance for the enticing and catching of anchovies and other kinds of fish. Canals and rivers intersect the land, and in many places we find lakes and ponds, though the number of these has been greatly reduced by means of impoldering and draining. These diked-in polders testify to it, that The Netherlands justly bears the name of "waterland".

HISTORY.

Most prominent in the History of the Fisheries is the *Herring Fishery*, also called the *Great Fishery*, for the protection of which numerous measures were taken in the 16th century and after. This trade was introduced into Zeeland from Flanders; in 1163 the first herrings were caught and eaten in Holland. A radical change was brought about in the Great Fishery by the invention of *sousing* in the first half of the 14th century by WILLEM BEUKELSZ OF



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BIERVLIET. By this process the gills and other internal organs are removed the moment the herrings are caught; they are then packed in barrels, between layers of salt. This sousing-process enables the Netherlands fishermen to go on with their work at sea, without having to put back to port after every catch, as the English fishermen do, who work so much nearer their base of operations.

The importance of the herring fishery, — *'s Lands Principaele Goudmijne*[1] as the old writers are fond of calling it — may be judged from the prosperity and wealth of the towns where this trade was carried on. Enkhuyzen, now one of the "villes mortes" of the Zuyder Zee, yet bears unmistakable traces of its former wealth, grandeur and prosperity, at a time when it ranked among the foremost fishing-towns. The stately town-hall, completed in 1688, vividly reminds us of the time when a fleet of 500 fishing smacks set out from this town alone.

Coat-of-arms of Enkhuyzen

Truly, Enkhuyzen's coat-of-arms, three herrings, one above the other, is well-chosen and appropriate. In its golden days Enkhuyzen counted 40,000 inhabitants, which number, after the decline of the fishing-trade in 1840, was reduced to 4988! (To-day the town has some 7000 inhabitants.)

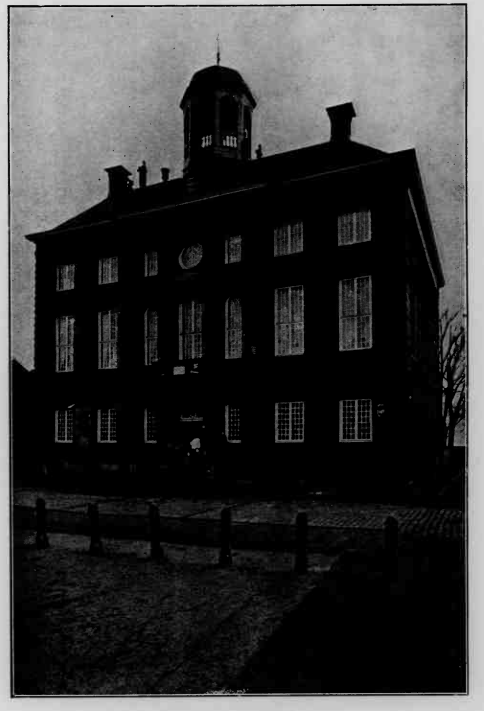
It was a *fête* day when the first of the "New Herrings" came ashore, and the old saying,

"Haring in 't land
Dokters aan kant." [2]

proves that, besides the economic advantages, the nutritive value of the herrings was also highly prized. Down to this day the fishmonger's shops are decorated with flags and evergreens as soon as this delicacy is on sale again.

In the 18th century the herring-fishery began to decline, and in 1747 the number of fishing-smacks, which in 1601 amounted to 1500, had come down to 200. By means of

[1] The Chief Goldmine of the Country.
[2] Herrings in the land, no doctors needed.



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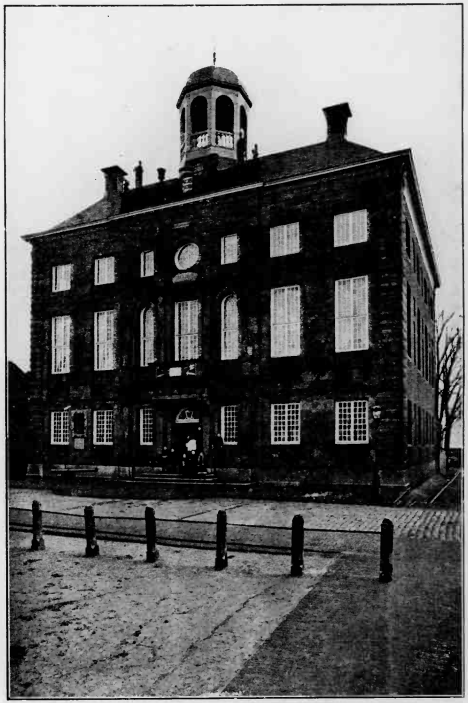
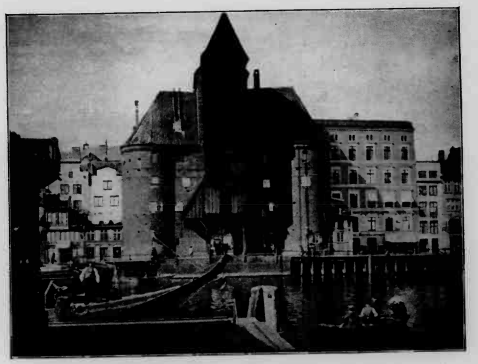


The town-hall at Enkhuyzen.

View at the "Amsterdam train-oil boiling establishments" on Jan-Mayen-Island (1639).

premiums of *f* 500 per vessel, to be awarded for 12 years, an attempt was made to keep the failing trade going; but with no great success, for at the beginning of the 19th century the herring fishery fell off even more, and in 1813 only 3 smacks put to sea.

On the restoration of the independence of The Netherlands, the trade once more began to flourish. In 1814, 98 smacks put out; in 1830, as many as 173. Then followed a fresh decline, until in the middle of last century there was a revival of the sea-fisheries which brought that flourishing trade to the prosperity it enjoys at the present day.



The old "Krahntor" at Dantzic, where in the middle ages the Hollanders had their own herring-stores.

Whale-fishing, the so-called "*Little Fishery*", sprang up in the 17th century side-by-side with the herring fishery, and quite suddenly attained extraordinary prosperity. It was centralized in the "Noordsche Compagnie", which, established in 1614, consisted of "chambers" of the various

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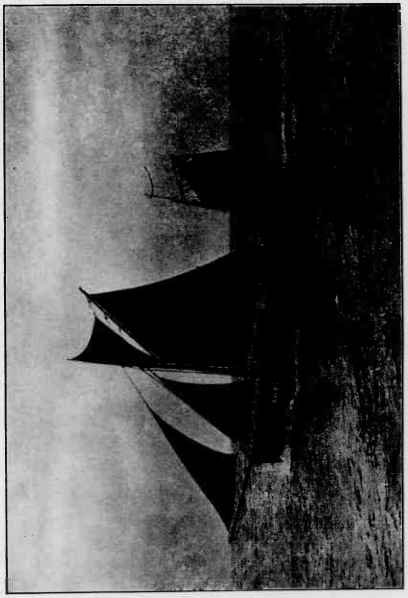
towns, carrying on the trade as a trust, or union of independent organizations. The actual purpose of the establishment of the "Noordsche Compagnie" was mutual cooperation, which would enable the trade successfully to cope with foreign competition, and if possible to oust the foreigner from the world-market, numerous disputes having arisen from time to time with England and Denmark, regarding the right of the Hollanders to fish far up in the North. The members of the Compagnie continued to have independent control of their own capital, and to fit out their own fleets. Annually they came to a mutual agreement as to the quantity of whalebone and train-oil they meant to obtain. The village of "Smeerenburg", a settlement on Spitzbergen, where the men wintered and stored their tools, had grown to a place of importance within the course of a few years; in 1633 it even possessed a church, and a fortress for defensive purposes. In 1645 the Compagnie was dissolved owing to lack of interest, and Smeerenburg ceased to exist.

Besides whales, this trade included the catching of walrusses and seals; how considerable the results often were, may be seen from the number of whales which an Amsterdam whaling-fleet caught in the year 1684, no less than 1185.

After the dissolution of the Compagnie whale-fishing was continued by private enterprise with intermittent success, off Greenland and about Davis Strait. The 14,167 vessels which put to sea after the Compagnie had ceased to exist, yielded a total of 44½ million guilders. Towards the end of the 18th century, however, the industry began to decline, and in 1864 the last whaler, the Dirkje Adama, was sold at Harlingen. In 1869 another attempt was made by Mr. C. J. Bottemanne to establish a Whaling Company, but the venture went into liquidation in 1872.

FISHERY LEGISLATION.

Whereas sea-fishing attained comparative prosperity in the 2nd half of last century, *fresh-water fishing*, in rivers, canals etc., slowly decreased, chiefly owing to the fact that



Lugger in full sea.

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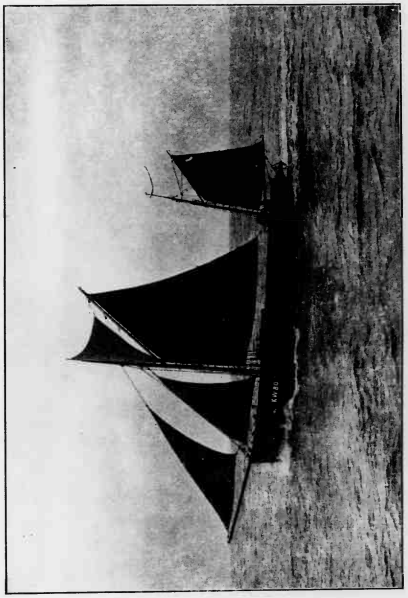

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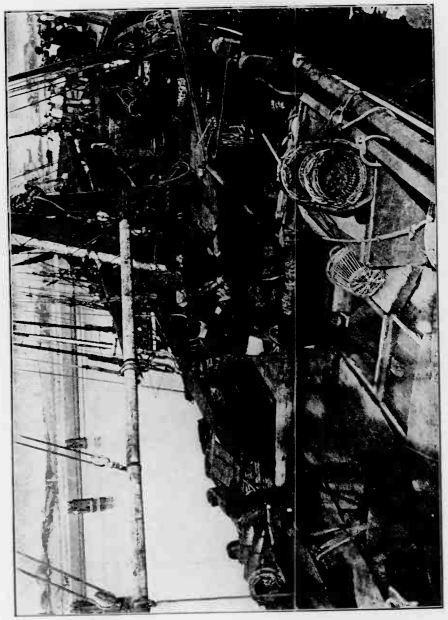


Loading nets for a herring-trip

unauthorised fishing in private waters, though prohibited, was punished only by the lightest of penalties, (not as a crime, but as a trespass). A more adequate regulation of the Fisheries was repeatedly pressed for, and the fishers themselves eagerly looked forward to fresh legislation.

The Act of June 21st, 1881, contained regulations regarding sea- and coastal-fishing, and also regarding fishing in the Zuyder Zee and the Zeeland streams, fresh-water fishing being regulated in the Act of 1857, along with the chase. This state of things was brought to an end by means of the new Fisheries Act, which after endless difficulties and lengthy preparations was enacted on October 6th, 1908, and came into force on July 1st, 1911. For the first time, all the fisheries were comprised in the one bill, being classified as:

I. Sea-fisheries.

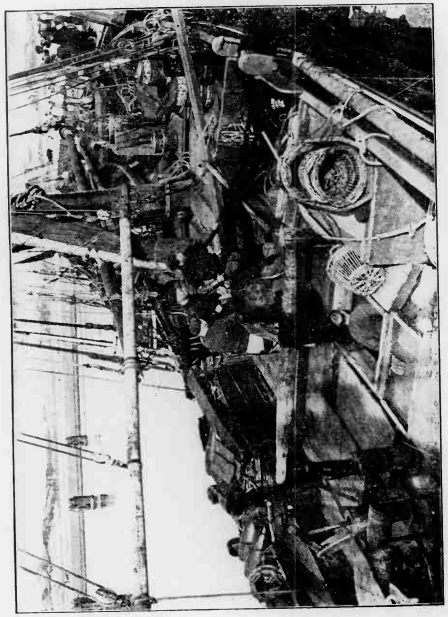
II. Coastal-fisheries.

III. Inland-fisheries.

This Act institutes a *Fisheries Board*, in which has been merged the former Sea-Fisheries Board. This Board gives advice independently, or acts as advisory body in cases where the Government consults it regarding the true principles of conduct for Government intervention in this branch of national prosperity.

The work of the former Adviser in fishery matters, and of the former State institution for investigation at sea, has been entrusted by Decree of May 10th 1912 to a State Institute for Fishery Investigation, which furnishes scientific information on all matters concerning the fisheries.

Following the example of other countries, a new sphere of activity has been created by the introduction of a system of *Inspection*. Officials are appointed to supervise the fisheries, to enforce the carrying out of the enactments, to serve as technical helpers and advisers to those employed in the fishing-trade, and to investigate how and by what means the fisheries can be promoted. This work covers a wide range, and in the first years of its establishment the service grew to a great number of officials.



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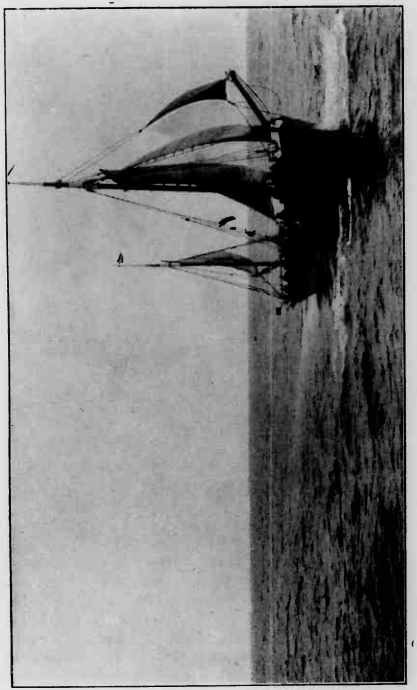


A Maassluys lugger.

I SEA-FISHERIES.

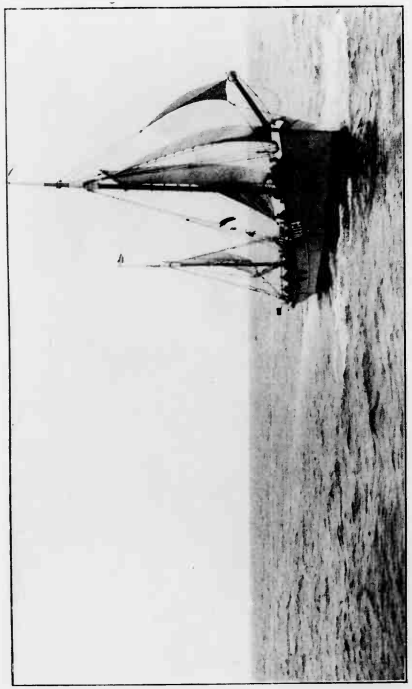
From an economic point of view this branch of the fisheries is by far the most important. It is carried on in three different ways:

1. Drift-net fishing for herrings.
2. Long-line fishing.
3. Trawl-net or trawl-fishing.

Drift-net fishing. The herring fishery is carried out by means of drift-nets, 100 or 150 of which are fastened together, often to a length of 3 to 4 K. M. (This is called the "Vleet"). Towards the middle of last century a great improvement was introduced by the shipowner A. E. MAAS of Scheveningen, who substituted light *cotton nets* for the heavier hemp nets, and who copied the French type of lugger, which was found to be far more serviceable for the fishing-trade than the old smack.

Even to this day the herring fishery remains the most important branch of the sea-fisheries. In 1913 it formed 74.52 % of the total catch of salt-water fish for that year, the profit representing 69.59 % of the total yield.

As the type of herring-vessel got larger, the old seaside towns, where in winter the smacks were laid up on the beach, as for example Zandvoort, Scheveningen, Noordwyk, Hellevoetsluys and Katwyk, no longer came up to the requirements. Special harbour accomodation was needed; in 1899 Scheveningen got a fishing-port, which was completed in 1905. The plans for the extension of the inner harbour at Katwyk are awaiting execution. The need of centralization for the sale and despatch of fish was likewise felt, so that those harbours that were easily accessible, and had sufficient depth, soon attained greater importance, as the vessels from other ports could come in and land the fish there. The major part of the herring-fleet is concentrated in 5 ports, to wit: Katwyk, Maassluys, Scheveningen, Vlaardingen and Ymuyden; and in 1913 the number of their craft amounted to 72 % of the whole fleet, representing 89 % of the total tonnage.



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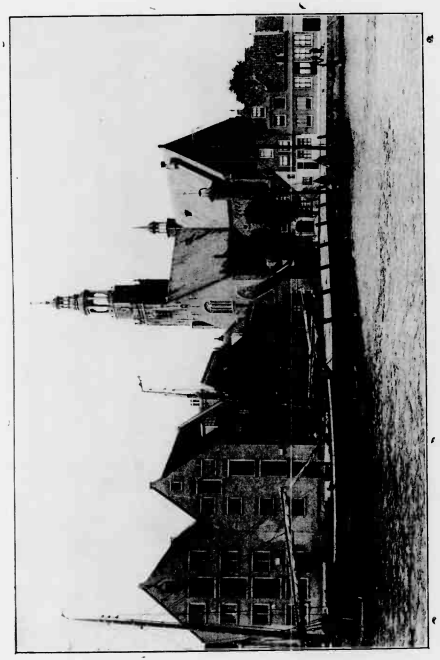


Harbour at Maassluys.

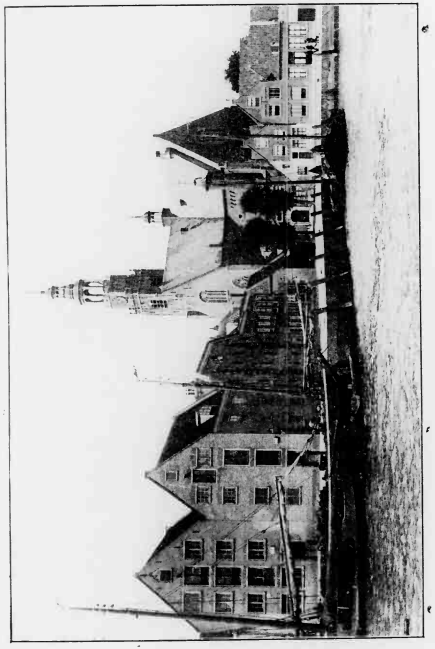
	1912.		1913.	
	Amount K.G	Profit fl.	Amount K.G.	Profit fl.
Ymuyden.....	2.249.640	347.863	3 683 425	519.519
Katwyk.....	11.659.000	1.816.262	17.926.800	2.617.619
Scheveningen..	23 607.700	3.843.892	36.626.800	5 542 705
Maassluys.....	9.272.400	1 498.640	13.028.100	2.000.434
Vlaardingen...	18.444.600	3.071.678	28.142.200	4.389.358
Total (including minor fishing centres).....	66.213.640	10.732.540	100.549 025	15.242.448

Besides the supply of herrings, landed by the Netherlands vessels, there is a considerable quantity of herring and mackerel (which is always caught along with herrings), brought into our harbours by English boats. In 1913 this amounted to 7,107,198 K.G., with a profit of fl. 576,641, as against 2,960,835 K.G. (fl. 235,444) in 1912, and 740,775 K.G. (fl. 75,032) in 1911.

In 1914, on account of the war, only one English drifter came to the Ymuyden market, so that the supply of fresh herring and mackerel from foreign vessels in 1914 was only very small.

The smaller fishing-boats are gradually disappearing; in 1913 there were only 119, and in 1914 only 64 boats of the old type left. Luggers took their place, — as it was difficult to engage crews for them — the men preferring to serve on the larger boats, which moreover allow the fishing-trade to be carried on more economically. In 1913 the herring-fleet totalled 751 boats, the cubic contents being 182,184 M³; in 1912 it was 741 boats, with 174,028 M³. contents, whereas in 1892 the number had been 546. with 83,451 M³. contents.

It is curious to observe how little mechanical means of propulsion have sofar been applied to herring-fishing, far less than in trawl-fishing, and that the former trade is carried out mostly by means of sailing-boats, which in the trawl-fishing trade have already been replaced by steamboats.



Harbour at Maassluys.

	1912.		1913.	
	Amount K.G	Profit fl.	Amount K.G.	Profit fl.
Ymuyden.....	2.249.640	347.863	3 683 425	519.519
Katwyk.....	11.659.000	1.816.262	17.926.800	2.617.619
Scheveningen..	23 607.700	3.843.892	36.626.800	5 542 705
Maassluys.....	9.272.400	1 498.640	13.028.100	2.000.434
Vlaardingen ...	18.444.600	3.071.678	28.142.200	4.389.358
Total (including minor fishing centres).....	66.213.640	10.732.540	100.549 025	15.242.448

Besides the supply of herrings, landed by the Netherlands vessels, there is a considerable quantity of herring and mackerel (which is always caught along with herrings), brought into our harbours by English boats. In 1913 this amounted to 7,107,198 K.G., with a profit of fl. 576,641, as against 2,960,835 K.G. (fl. 235,444) in 1912, and 740,775 K.G. (fl. 75,032) in 1911.

In 1914, on account of the war, only one English drifter came to the Ymuyden market, so that the supply of fresh herring and mackerel from foreign vessels in 1914 was only very small.

The smaller fishing-boats are gradually disappearing; in 1913 there were only 119, and in 1914 only 64 boats of the old type left. Luggers took their place, — as it was difficult to engage crews for them — the men preferring to serve on the larger boats, which moreover allow the fishing-trade to be carried on more economically. In 1913 the herring-fleet totalled 751 boats, the cubic contents being 182,184 M³; in 1912 it was 741 boats, with 174,028 M³. contents, whereas in 1892 the number had been 546, with 83,451 M³. contents.

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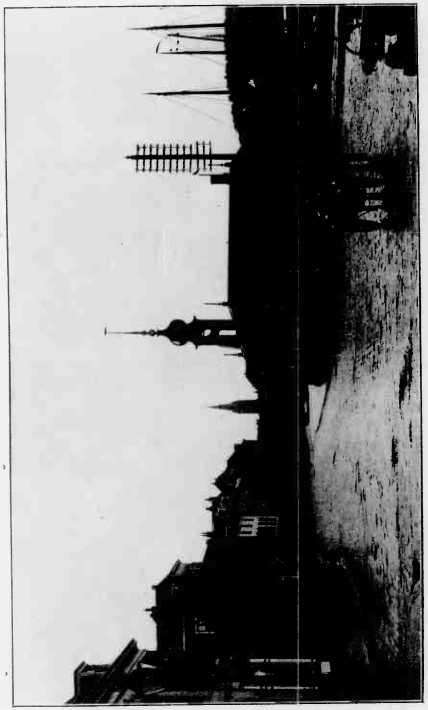


Fishmarket at Vlaardingen.

In Vlaardingen, however, steamboats are beginning to be used, since the construction in 1896 of the first steamer for Mr. A. HOOGENDIJK JZN., and the practice is growing as these boats have proved to be adaptable for long-line fishing in winter, as well as for herring-fishing in summer.

Long-line Fishing. This is carried out by means of long lines, anchored to the bottom of the sea, and branching off into shorter sidelines furnished with hooks, to which the bait is fastened. These so-called "lines" are often as long as 12 K.M.

Long-line fishing is a trade which is decreasing every year, and which is now being carried on mainly as a side industry in spring and autumn, along with drift-net fishing. Most long-line fishing-boats engaged in the main trade are registered in the three towns of Middelharnis, Maassluys and Pernis. From 50 vessels in 1892, the number fell to 12 in 1913, and to 6 in 1914!

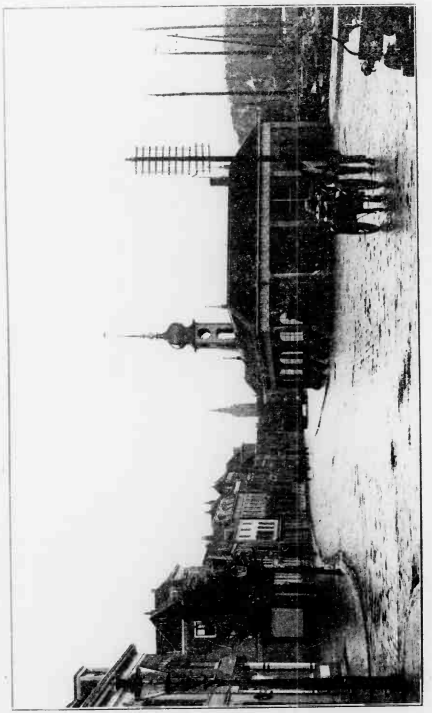
SUPPLY OF LONG-LINE FISH.

1912.....	2,049,413 K.G.	fl. 604,626
1913.....	1,530,980 „	„ 539,667
1914.....	890,602 „	„ 317,332

With the line are caught mainly: Haddock, cod, halibut, ray, and ling.

Haddock and cod constitute 78% of the total supply, and represent 88% of the total profit.

Trawl or trawl-net fishing. This is carried on by means of trawl-nets which are dragged along the bottom of the sea. The development of this trade is closely connected with the immense rise of *Ymuyden as a fishing-port*. In the course of a few years it has become the largest in the European continent. Only England has larger fishing-ports, like Grimsby, Aberdeen and Hull. Its situation at the mouth of the North Sea Canal, and in close proximity to Amster-



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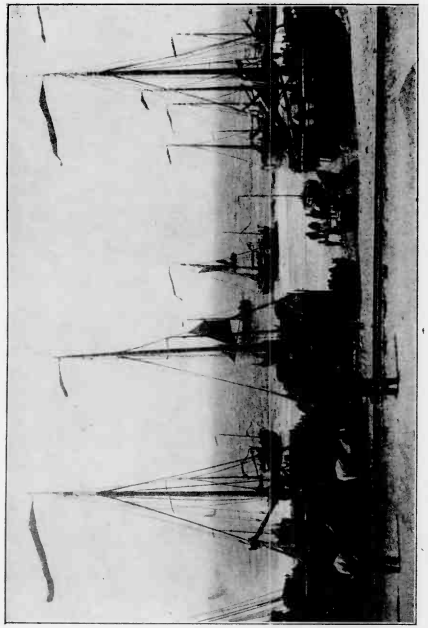

Scheveningen fishing boats on the shore before the fishery-harbour had been constructed.

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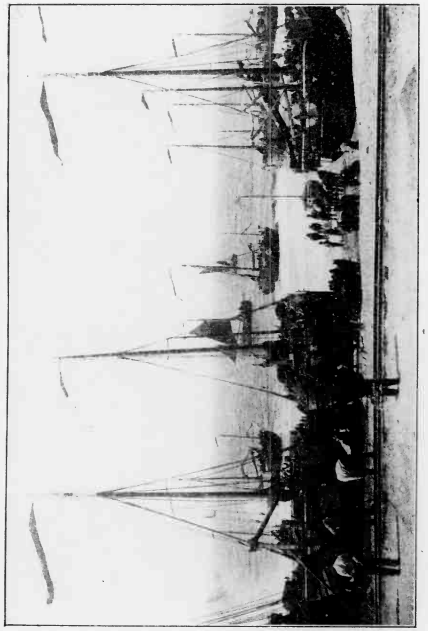
Ymuyden owes its existence and its rise to the construction of the North Sea Canal, which directly connects Amsterdam and the Zuyder Zee with the North Sea. In 1865 the work of construction was begun, and on Nov. 1st 1876 the Canal was inaugurated. Ymuyden at that time was far to seek, and now it numbers more than 10,000 inhabitants!

With truly American rapidity it is growing into a town of importance, leaving the town of Velsen, under administration of which it falls, far behind in development. Originally the fishing-boats entered Ymuyden as a refuge, and lay sheltered in the canal. When however the locks were extended, and the increasing fishing traffic blocked the entrance to the harbour, there was no longer room for the fishing-boats, so in 1887 the Government decided to make a special harbour for fishing-boats, which was inaugurated in 1896. The depth of the canal and harbours renders it possible for steamboats to carry on the fishing trade; as early as 1901 the harbour had to be enlarged, and it now covers an area of 13 HA.! The anchorage, which is now being constructed, will cover an area of 3,5 H.A. The catch is taken to three fish-markets, situated next to the railway, the markets even being provided with a special despatch-station of their own. The auction is conducted by the Government. Thus the State remains liable for the purchasers, but the liability, in virtue of a contract between the State and some Banking firm, is taken over by the latter body. At the other ports the fish-auction is not a Government institution. There the auctions, though public in name, are conducted by the ship-owners' societies or by the municipalities themselves.

The rapid development of Ymuyden may be judged from the number of ships entering the harbour:

1897: 9,794 vessels with 690,507 M³. total contents, *average content 70 5 M³.* Of these 68 were steam-trawlers, and 8,872 trawl-fishing sailing-boats. (6981 coastal-fishers.)

1914: 13,598 vessels with 3,358,125 M³. total contents,



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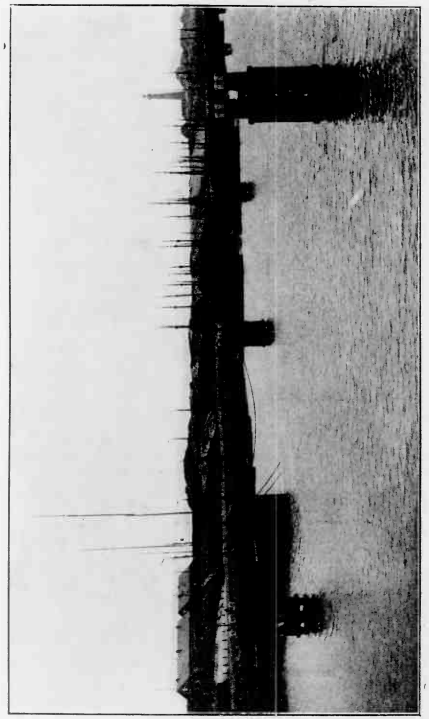

Fishery-harbour at Scheveningen.

average content 246,50 M³. Of these 4514 were steam-trawlers and 6314 trawl-fishing sailing-boats (4666 coastal-fishers).

255 of them were long-line fishers and 349 drift-net fishers, whilst 2,166 were cargo-boats for the transport of fish. The number of foreign vessels, mostly English, is considerable: in 1913 it amounted to 338 steamboats (333 of which were English) and 46 English sailing vessels.

Next, a few items concerning the total supply of fish at the Government market:

1900	fl.	818,970
1905	„	4,072,666
1911	„	5,379,029
1912	„	6,974,394
1913	„	6,995,785
1914	„	7,134,466
1st 9 months of 1915	„	10,388,148

The increase from 1912 to 1913 is comparatively low on account of the fishermen's strike in November and December 1913.

The greater part of this fish is for export In 1913 the water-carriage amounted to 7,064,285 K.G., in 1914 to 7,009,040 K.G. The export by rail from Ymuyden in 1913 was: 34,391,926 K.G., in 1914 35,503,241 K.G., and the proportional percentage for the 5 countries of destination was:

	The Netherlands.	Germany.	Belgium.	France.	Switzerland.
1912	31.8	39.4	27.5	0.8	0.5 %
1913	29.4	38.2	30.9	0.9	0.6 %
1914	35.3	47.7	14.7	1.0	1.3 %

Though fish is exported to England also, no figures can be given, the purchases being sent to inland forwarding-agents; the amount is therefore comprised in the figure for Holland, quoted above.

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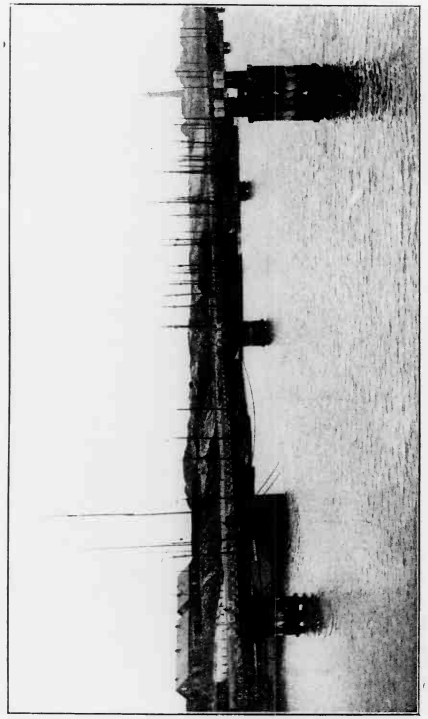

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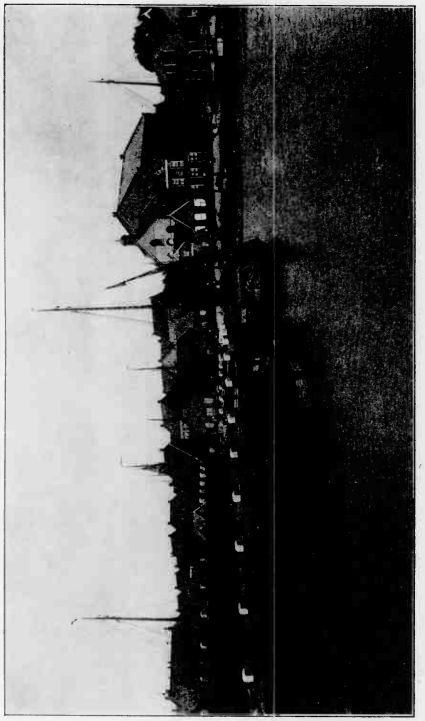


Harbour at the Isle of Urk.

EXTENT OF THE FLEET.

	Trawl-fishing.		Drift-net fishing		Long-line fishing.	
	Number of craft.	Gross content in M³.	Number of craft.	Gross content in M³.	Number of craft.	Gross content in M³.
1911	512	84,969	751	172 477	22	6200
1912	546	102,086	741	174,028	20	5720
1913	560	112,183	751	182,184	12	3513
1914	547	110,632	774	193,208	6	1756

TOTAL PROFIT.

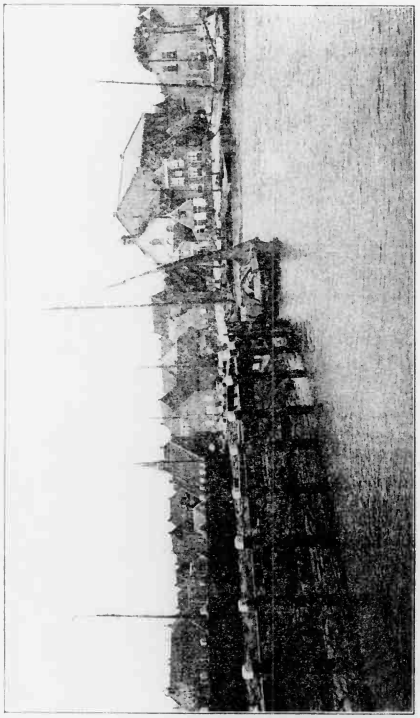
	Trawl-fishing.		Drift-net fishing.		Long-line fishing.	
	Amount in KG.	Profit in fl.	Amount in KG.	Profit in fl.	Amount in KG.	Profit in fl.
1911	29,445,537	4,803,705	85,639,125	11,035,636	2,369,525	703,838
1912	35,292,380	6,399,633	86,213,640	10,732,540	2,049,413	604,626
1913	31,507,980	5,977,284	100,549,025	15,242,448	1,530,980	539,667
1914	36,030,849	6,807,938	66,145,820	12,599,009	890,602	317,332

TOTAL IN FL.

1911.....	fl. 16,543,179	1913.....	fl. 21,759,399
1912.....	„ 17,736,819	1914.....	„ 19,724,329

YIELD OF THE MAIN KINDS OF FISH FOR 1913.

Fish.	Trawl-fishing.	Long-line fishing.	Drift-net fishing	Total.	Amount %	Profit %
	in fl.			in fl.		
Turbot.....	565,511	—	–	565,511	0 51	2.60
Sole.....	1,011,640	—	—	1,011,640	0.43	4.65
Plaice.....	1,224,146	—	—	1,224,146	7.46	5.63
Ray.....	161,526	18,143	—	179,669	0 91	0.83
Haddock...	1,264,303	328,011	—	1,593,314	5.02	7 32
Cod.....	918,773	147,052	—	1,065,825	4.90	4 90
Whiting...	161,254	647	—	161,901	1.63	0.74
Herring....	8,158	--	15,134,773	15,142,931	74.52	69.59
Mackerel...	32,553	—	107,675	140,010	0.94	0.64
Flounder...	120,418	—	—	120,410	1.33	0.65



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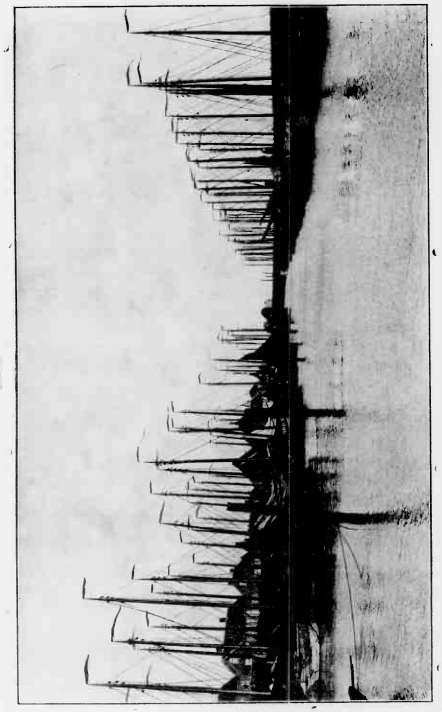


Harbour of Bruinisse (Zeeland).

TOTAL INCLUDING OTHER KINDS OF FISH.

fl. 5,977,284 with 31,507,980 KG.	fl. 539,667 with 1,530,980 KG.	fl. 15,242,448 with 100,549,025 KG.

EXPORT.

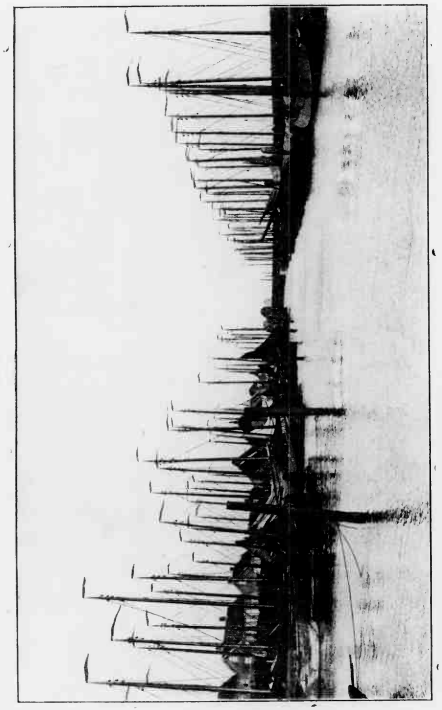
In 1913 to:	KG.
Belgium	21,280,138
Germany	90,459,601
England	1,119,302
France	145,295
Norway	1,102,571
Sweden	3,793,603
British North America	218,069
United States of America	16,950,667
South America	831,034
Other countries	2,283,619

Three quarters of the export was herring, the rest cod or other fish. Only a small quantity of certain kinds of fish is consumed in The Netherlands, where so far fish cannot be called a "national dish". The war, however, has caused a rise in the price of meat, and so the "*Central Bureau for the sale of fish*", called into being by the abnormal state of affairs, is trying to meet the exigency by introducing fish as a cheap food for the people. In 1915 the municipalities of numerous towns established markets or shops for the sale of fish.

TRAINING FOR THE FISHING-TRADE.

In 1913 and 1914 the number of men employed in the sea-fishing trade amounted to about 12,000, including some 1000 hands serving on vessels engaged in coastal-fishing as well as sea-fishing.

Fishery-Schools exist in twelve towns: Enkhuyzen, Harderwyk, Hindeloopen, Katwyk-on-Sea, Maassluys, Marken, Noordwyk-on-Sea, Scheveningen, Spakenburg, Vlaardingen, Volendam and Ymuyden. A fishery-course is moreover conducted by the School of Navigation at Helder. Most of these schools are municipal institutions, others have been



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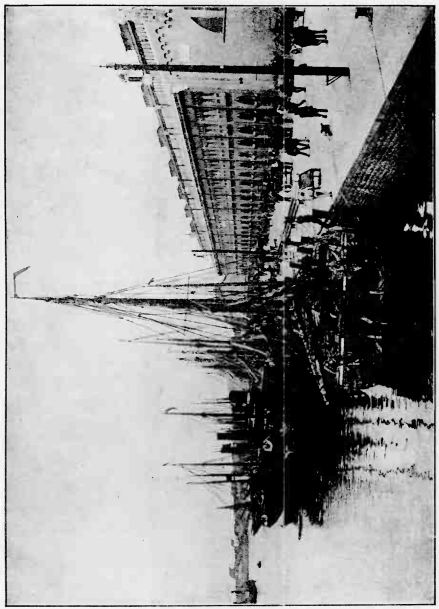

Harbour of Ymuyden with fish-auction-buildings

established by different Societies, *all* are endowed by the State and the Province. On the whole however, the instruction leaves much to be desired as yet, and is not conducted on the same basis and lines of development as in England. At the Fishery-Schools the men are principally taught to navigate their vessels, they learn the rudiments of navigation, and the repair of fishing-tackle, whereas it would be advisable rather to instruct them in the handling of the fishing-tackle, in the life and habits of the fishes, and the way to deal with them afloat and ashore, in the most rati-

Fishery-school with a number of pupils at Maassluys

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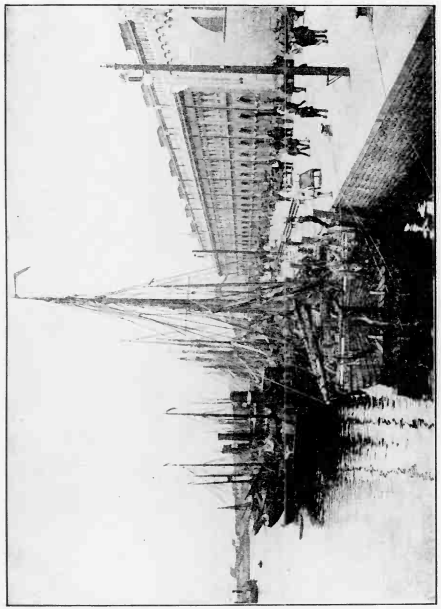

Harbour of Ymuyden with fish-auction-buildings

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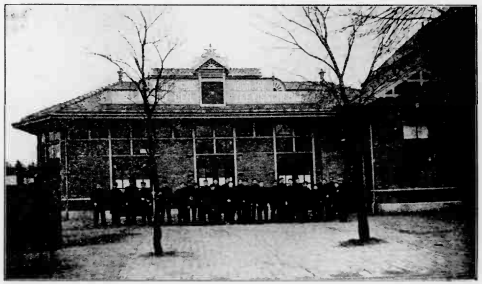

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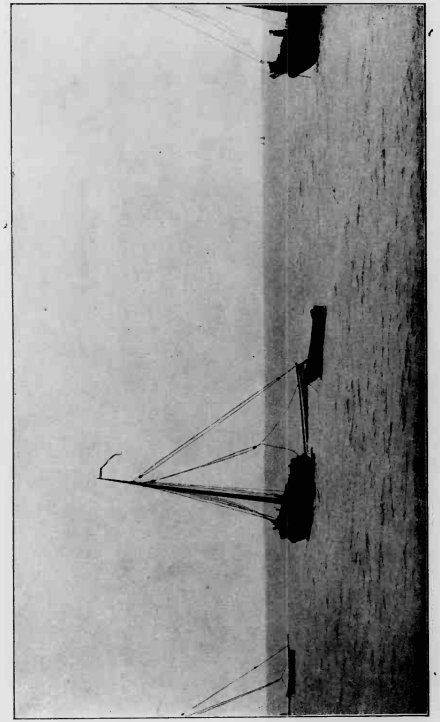


Fishing with the so-called "aukerkuil" (Zuiderzee).

As a result of private initiative, and with an annual State endowment of about fl. 10,000, the Hospital and Church Boat "de Hoop" was fitted out, and since 1899 has been rendering service to fishermen of all nationalities. From June until the herring-fishing is over, this vessel cruises in the North Sea, in order to provide the crews of the fishing-fleet with medical and religious assistance.

II. COASTAL-FISHING.

As distinct from sea-fishing, coastal-fishing is mainly a "retail trade", except in regard to oyster culture and part of the mussel-fishing.

The Act of 1908 regulated it apart from sea-fishing. For sea-fishing as well as for coastal-fishing the boats have to be registered and need a consent. (In 1913 there were 4,752 vessels registered and 8,849 consents were granted).

The regions for coastal-fishing comprise the Dollard, the Wadden, Lauwerzee, Zuyder Zee, the Zeeland and South-Holland streams, and the territorial waters, so that in some places sea-fishing is practised along with coast-fishing. With the exception of the territorial waters, which on the whole are of a purely North Sea nature, all the said regions show more or less similar or equivalent biological properties, and the fisheries are of the same nature.

The coastal-fishing comprises the fishing of:

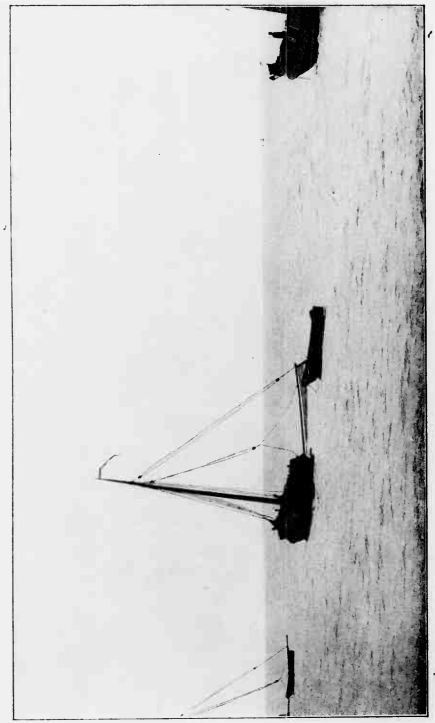
a. mollusca, (oysters, mussels)

b. crustacea (lobsters, shrimps).

c. divers kinds of fishes.

Though of less importance than sea-fishing, coastal-fishing yet plays a considerable part in the fishing-trade, providing a direct means of livelihood for more than 10,000 persons.

In the years 1892—1897 coastal-fishing yielded an average of fl. 940,000, and from 1898 to 1903 of fl. 1,900,000 a year. And ever since the profits have been increasing; in 1912 they amounted to fl. 3,984,783, in 1913 to fl. 5,160,096.



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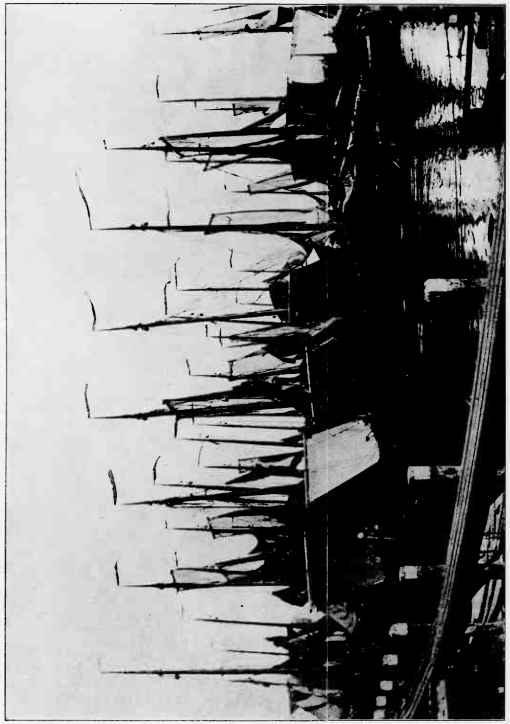
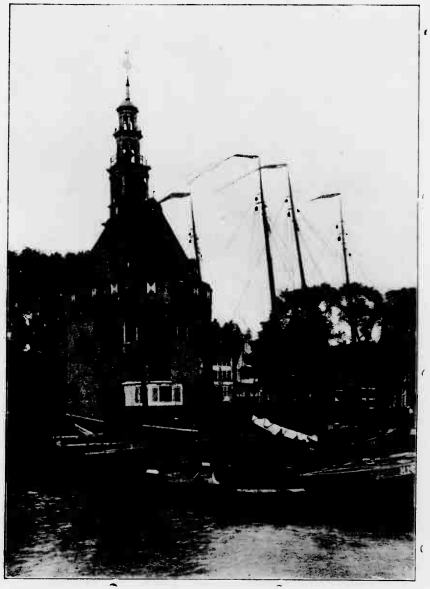


In the harbour of Volendam (Drying the so-called "wonderkuilen").

The major portion of the profit is yielded by the mollusca, in 1913 as much as 46.72 % of the sum total; next come



View in the harbour of Hoorn

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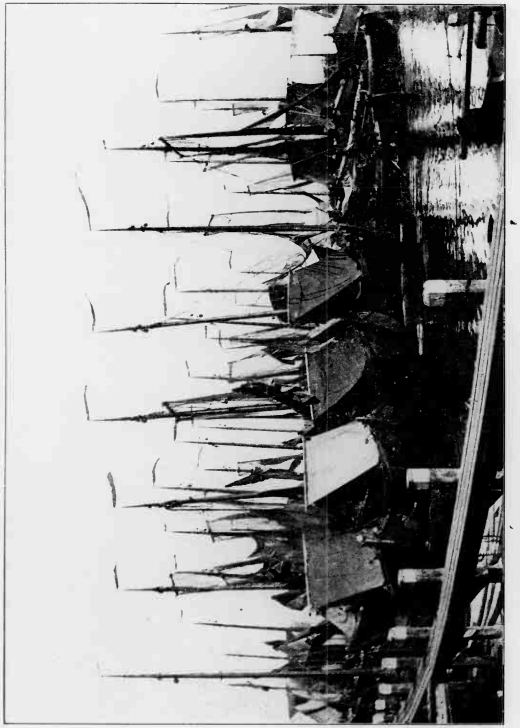

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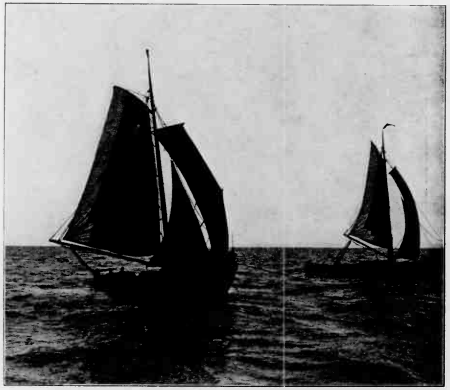

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a. *Fishing for Mollusca, mainly Oysters and Mussels.*

Artificial oyster culture, which flourishes especially in Zeeland (Ierseke), dates from the end of last century. The young oysters are caught on tiles lying in the water, or in shells, and are taken to deeper water, outside the dyke. There they remain until they are full-grown; they are caught again by means of trailing-nets, and kept in the so-called "putten" (pits).

Besides in Zeeland, we find oyster culture in the North, near Harlingen, in the Lauwerzee, in Texel and in Wieringen.

1913.

	number.	profit.
North Holland	2,766,600	fl. 99,637
Zeeland	46,851,005	„ 1,459,621
total.....	49,617,505	fl. 1,559,258
total 1912	45,909,159	„ 1,428,696
total 1911	50,857,000	„ 1,374,100

The following table proves that most of the oysters are exported to Belgium, but that France, England and Germany may also be reckoned as regular purchasers.

Export of oysters from Zeeland to:

Countries	Season 1912/13.	Season 1913/14.	Season 1914/15.
The Netherlands	2,973,000	2,201,000	2,312,000
Belgium	21,182,000	20,663,000	11,297,000
Germany.....	10,892,000	11,357,000	6,817,000
England.....	6,037,000	8,337,000	2,224,000
France	5,523,000	7,107,000	6,000
Russia.....	208,000	156,000	—
Norway & Sweden.....	154,000	207,000	71,000
Total.....	49,969,000	50,028,000	22,727,000

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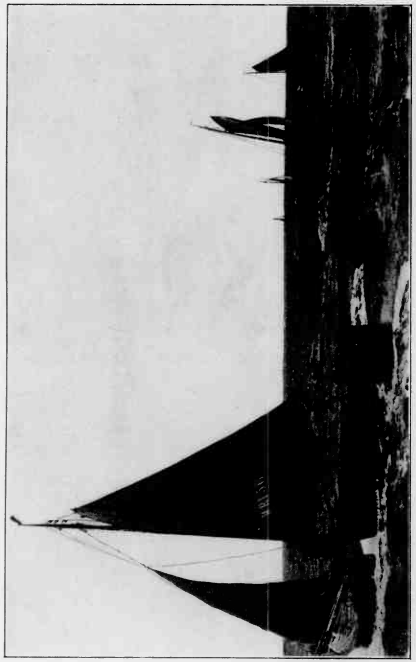

Fishing mussels in the Zuydersea.

Mussel-fishing is pursued on the banks in the north of the Zuyder Zee, and in Zeeland In the latter province it is of most importance. England is the principal purchaser, whither the export is mainly carried on from Harlingen and Helder.

	Amount in KG.	Yield in fl.
1911	44,294.708	fl. 715,654
1912	41,058,109	„ 666,091
1913	44,231,211	„ 715,887

Of late the importance of mussel-fishing has grown, owing to the fact that mussels are used as a surrogate for "nest", the food for ducks. This important factor for the Zuyder Zee fisheries will be treated separately further on.

b. *Fishing for Crustacea or Shell-fish*, meaning here *Shrimps, Lobsters* and *Crabs*. Of these shrimps are the most important. The fishermen of the North and South Holland sea-side towns fish in territorial waters, either in open boats, with a small shrimp-net, or on foot with a bay-shaped push-net. At the mouths of the South-Holland and Zeeland streams larger vessels are used, whilst in the Zuyder Zee the fishing is done with the beam- and the otter-trawl. Also off Helder and in the Lauwerzee there is a good deal of shrimp-fishing.

	Amount in KG.	Yield in fl.
1911	5,503,321	fl. 389,054
1912	5,543,080	„ 456,130
1913	5,709,825	„ 541,987

Shrimps are exported in important quantities. In the years 1897/1901 the export amounted to 2,581,277 K.G., in 1902/1906 to 2,296,440 K.G. and in 1907/1911 to 2,085,480 K.G. In 1913 alone 1,846,258 K.G. went to England, 670,980 K.G. to Belgium and 2,213 K.G. to France.

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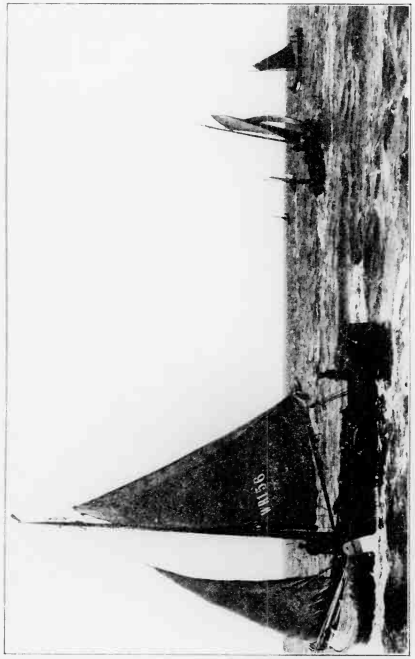

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Crab-fishing is of less importance; in 1913 it yielded fl. 3,676. In connection with the manufacture of fish-meal, however, it is increasing in the Zuyder Zee and Waddenzee.

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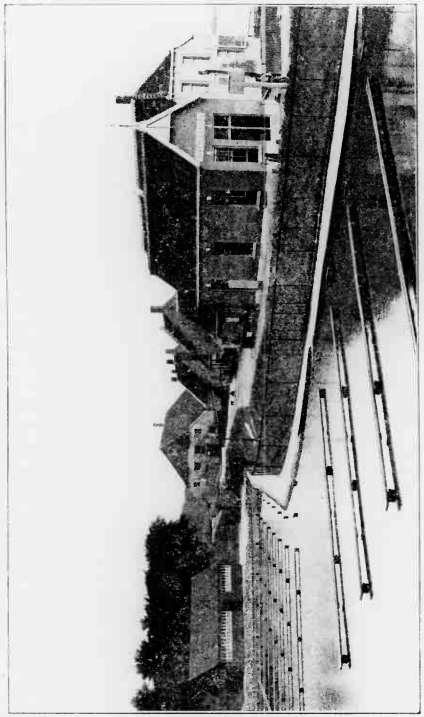

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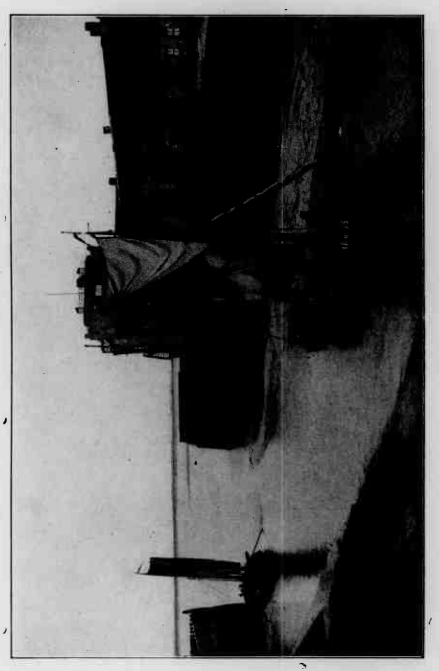

Fishingboats of Arnemuyden in the harbour of Veere

	1913. K.G.	Amount %	In fl.	Profit %
Herring	5,337,810	39.60	477,182	21.85
Anchovy	2,328,668	17.28	830,496	38.03
Flounder	1,151,729	8.55	318,178	14.57
Eel	679,219	5.04	319,437	14.63
Smelt	1,658,370	12.30	116,745	5.35

Before of giving a more detailed account of anchovy-fishing and the curious place it holds in commerce and in the fishing-trade, it is advisable for the sake of completeness to give in brief a general survey of the Zuyder Zee fisheries.

The Zuyder Zee fisheries constitute by far the most important part of the coastal-fishing. The fishing-villages with their quaintly dressed population possess a charm for every visitor. The vivid impression which Marken and Volendam make on all foreign tourists in Holland is indeed so striking, that imaginative foreigners often fancy that Amsterdam and all Holland goes about in wooden clogs and wide, baggy breeches. This same picturesque population however, is a tough race of fisherfolk of the true stamp. For them the draining of part of the Zuyder Zee would mean a great calamity, to which only generations to come will be able to adopt themselves. The draining projects are the order of the day just now, so that the characteristics of these fishing-villages may be doomed to vanish before very long.

By the proposed draining operations a Zuyder Zee province will be reclaimed; covering an area of 211,830 H.A., which will provide accomodation for some 209,000 or 250,000 people. The cost is estimated at fl. 163,000,000.

Fishing in the Zuyder Zee is carried out with:

a. stationary nets, e. g. anchovy-nets, flounder-nets etc.

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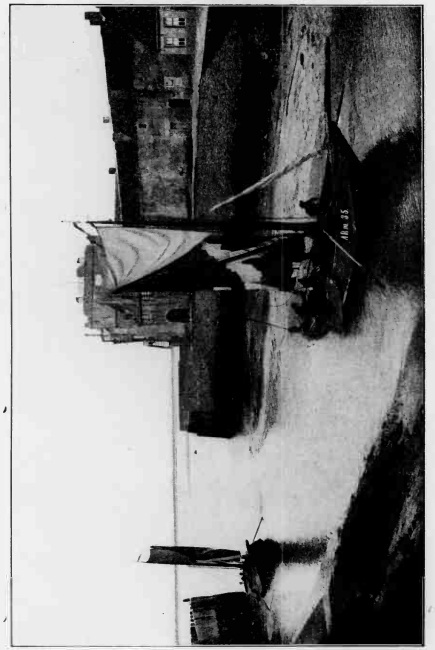

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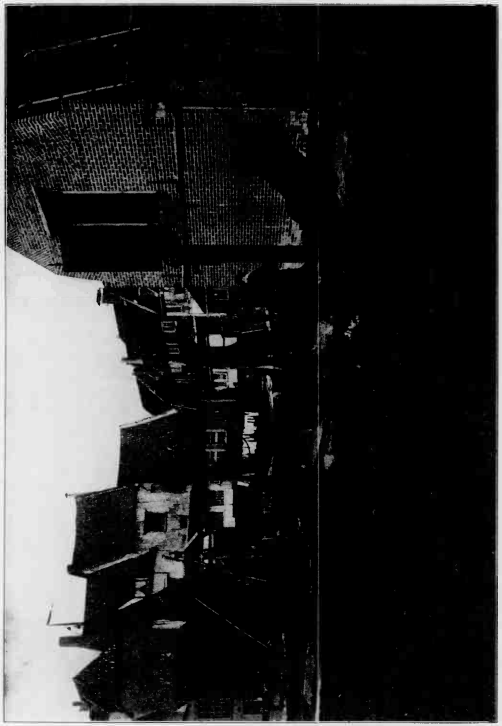


Drying bow-nets (eel-nets) at Enkhuyzen.

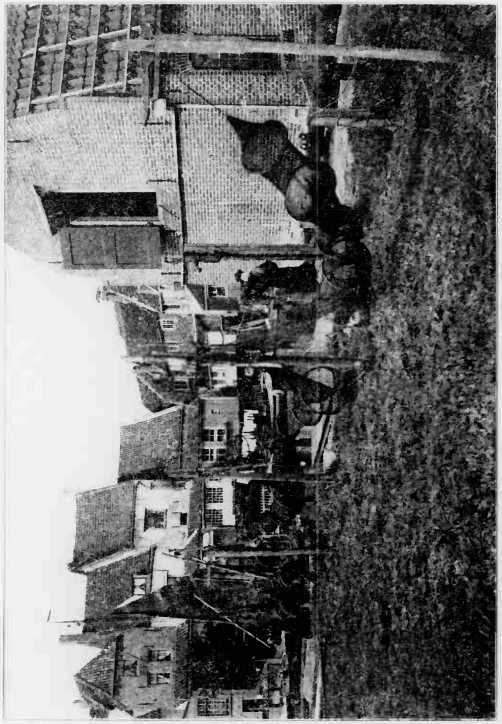
β. the otter-trawl, dragged behind the boat.

γ. the wonder-net, dragged between two boats at a high speed.

This last is used mainly for anchovy, herring, shrimps and smelt. It gave so much offence that it has been given the name of "moordkuil" (murder-net).

Smeltfishing near Harderwyk.

The speed with which it is drawn through the water, and its wide surface, enables it to carry along all that comes in its way. The quantity of tiny fishes thus caught, the so-called "nest", is used as food for ducks. The consequence of this process must needs be the destruction of the smaller but valuable breeds of fishes, and this leads many to the opinion that such fishing exhausts the sea. Volendam, however,



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cannot do without it, and succeeded in obtaining the repeal of the original prohibition against its use.

The fishermen derive a considerable proportion of their profit from the "nest", which they sell to the duck-breeders in the South-Eastern part of North-Holland, (especially in Landsmeer), where according to a general estimate 170,000 ducks are fed on the "nest", of which on an average 11,640,000 K. G. are needed.

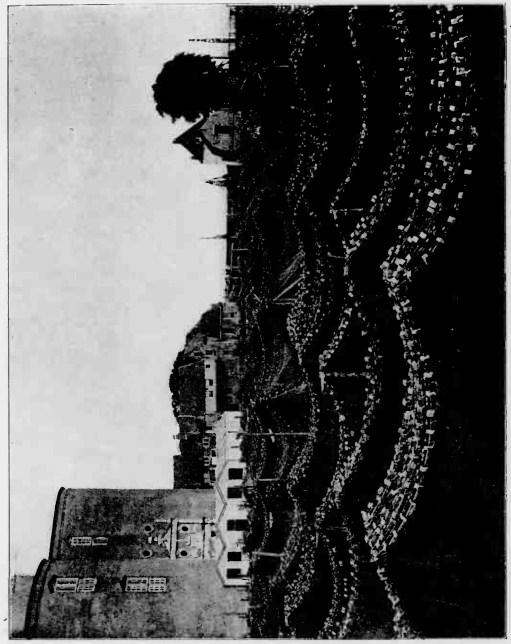
By the introduction of a close season, by prohibitions in certain areas, and by regulations as to the width of the meshes, an attempt was made to counteract this influence which might react detrimentally on the fish supply. In preference to an absolute prohibition of "nest"-fishing, which would have farreaching economic consequences, other methods are being tried; at the instigation of the Fisheries' Inspectors an attempt is being made, and with some success already, to encourage mussel-fishing; the mussels are ground, and in that state form a substitute for the "nest."

ANCHOVY-FISHING.

The anchovy is *the* Zuyder Zee fish. It is found chiefly in the Mediterranean and in the Atlantic, and towards the end of April or the beginning of May it comes in shoals from the North Sea into the Zuyder Zee The fish are then 1 year old and are caught with the trawl, stationary, or drift-net.

Prosperity in the typical villages on the Zuyder Zee, as the statistics given prove, depends to a considerable extent upon the anchovy-fishing, and in no branch of the fishing trade are the results more uncertain years of exceptional prosperity like 1906, when the yield amounted to nearly one million guilders (fl. 944,500), alternate with years like 1908, which produced scarcely fl. 13,800. In 1909 the anchovy-fishing in the Zuyder Zee yielded fl. 746,400, in 1910 fl 125,000, and in 1911 fl. 403,000.

Immediately on arrival, the anchovies are pickled, and packed in barrels, called "ankers" (anchors). In 1912, 68,000 "ankers" were pickled, to a value of fl. 980,000; in 1913, 50,000 "ankers", to a value of fl. 697,000; in 1914 the catch



Drying anchovy-nets at Enkhuyzen

cannot do without it, and succeeded in obtaining the repeal of the original prohibition against its use.

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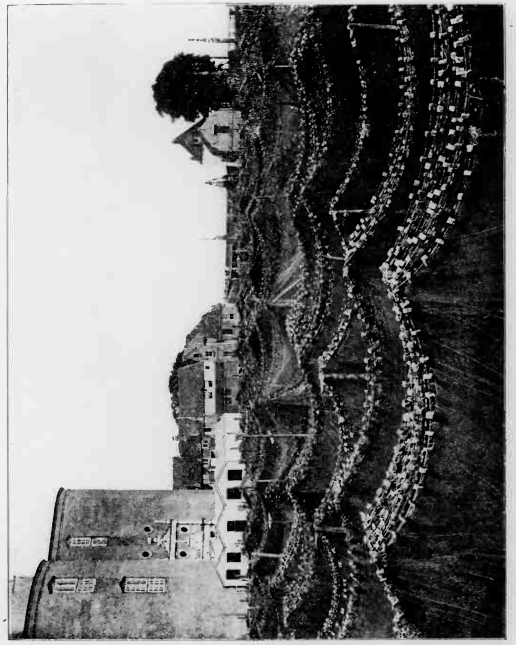


Drying anchovy-nets at Enkhuyzen

was only one third of that of 1913, (14,900 "ankers") and in 1915 these is further decrease — no more than 3600 "ankers"! On the Amsterdam Exchange the anchovy is an important speculative commodity. Like the catch, the price is subject to great fluctuations, caused alike by the varying hauls and by the possibility of preserving anchovies for many years. Anchovies more than a year old are usually higher in price. The price per anker, varying in 1915 from fl. 35 to fl. 55 for the new, and from fl. 45 to fl 67 for the old anchovy, in 1914 fell to from fl. 12½ to fl. 22½ for the new, and from fl. 19 to fl. 28 for the old. The figures will give some idea of the immense sums involved in the sale of the total stock.

The pickling is done by a great number of hands, mostly people of slender resources who are obliged to obtain an advance on their "ankers," which they store in the "*veem*", or bonded warehouse. Here the weight is ascertained by means of the "spoelen"(washing) process; the normal weight per "anker" is 30 K.G. In respect of the "ankers" deposited, the "veem" gives the pickler a receipt for a stated weight, no attempt being made to discriminate between the "ankers" of the different fishermen. The receipt can pass from hand to hand; it gives no special right to the "ankers" deposited by the pickler, it only entitles the holder to a certain weight of anchovies of a certain year No distinction is made as to quality, the value of the anchovy depends only on the year of the catch.

By far the largest export is to Germany, but trade is also done with Belgium, England and America.

ANCHOVY CONTROL.

On account of repeated complaints from the parties concerned, about the abuses in the existing practices in the anchovy-trade, and at the initiative of the Fishery Inspectors, the Government was in 1912 induced to institute the Anchovy Control Society, a body of picklers and dealers, bound to adhere to certain Government regulations stipulating a minimum weight of fish per "anker", adequate

preparation, and certainty as to the place of origin of the anchovy. The "ankers" are to be provided with control-marks, so that at any time the identity of the anchovy and of the owner can be ascertained. In commercial quarters, however, there is sharp opposition to the Society and its system of control; it is feared that it will prove a serious hindrance to the market

III. INLAND FISHING.

With inland fishing, as with coastal-fishing, the retail-trade predominates, except for salmon-fishing in the rivers, which is carried on by strongly financed organisations.

Inland-fishing is divided into:

a River-fishing in the larger streams.

b. Fishing in other waters, — lakes, canals, and pools, — inland-fishing proper.

a. RIVER-FISHING.

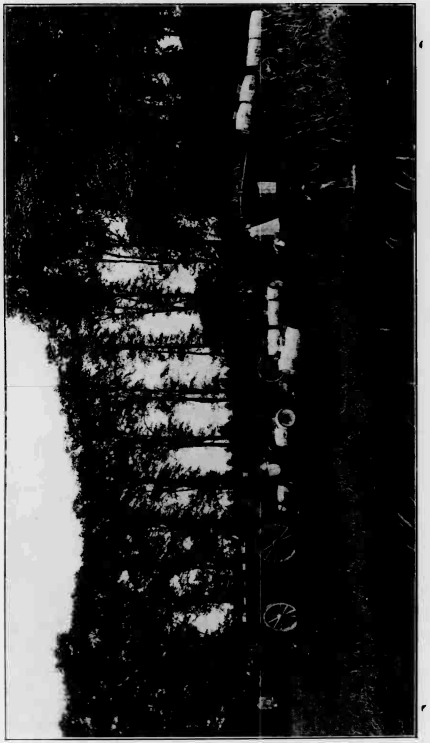
Apart from the ordinary kinds of fish that abound in all inland-waters, and among which the eel ranks first, river-fishing derives its importance from the so-called migratory fishes, which come from the sea to breed in the rivers.

Salmon.

The salmon, the most important of the migratory fishes, ascends the Maas, the Waal and the Rijn, to spawn far up these rivers in some affluent or rivulet with a stony bottom.

With a view to the great importance of the maintainance of the salmon stock a beginning was made in 1861 with the stocking of young salmon in the lower rivers. In that year 8000 six weeks' salmon were introduced into the river Lek. The stocking was regularly continued and in 1872 even largely extended, so that from 1872 to 1897 135 millions of six weeks' and 300.000 one year's salmon were introduced into the Netherlands waters.

Germany however suggested to The Netherlands that the too rigorous catching of sexually-ripe salmon ascending

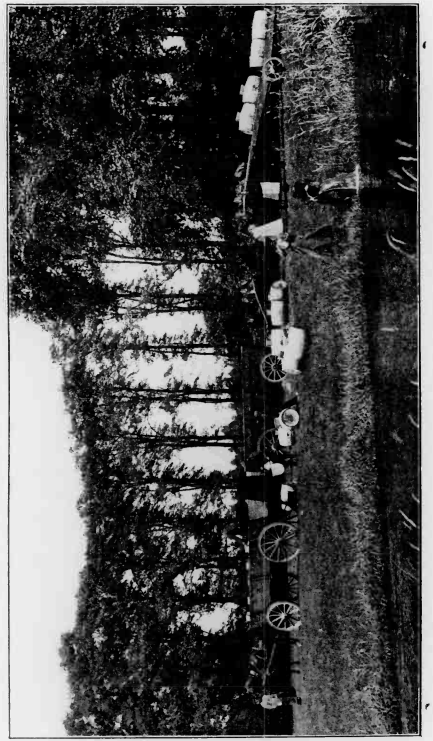


Introducing six weeks' salmon in the Yssel near Laag Keppel.

the rivers, might interfere with their natural propagation. Several German and Netherlands experts questioned the results of stocking in The Netherlands and advised to introduce the young salmon into the upper rivers. Thus, in order to protect the salmon-rearing, Germany and The Netherlands concluded the Salmon-contract of 1885, instituting a "close season" (from the middle of August to the middle of October), and prohibiting fishing on Sundays, so that on one day of the week the salmon might pass unmolested For the further improvement of the salmon-fishing trade, a sum of *f* 12.000 has figured in the budgets for the last few years, the object of which is to introduce into the upper waters of the rivers an average of some 2½ million young salmon.

The salmon hardly seem to be affected by these "protective" measures, and the good and bad years alternate as arbitrarily as the weather.

In the years after 1872 a prosperous period set in for the salmon fishery which lasted till 1896 and was at its highest in 1885; after 1898 the salmon catch declined from year to year. It even diminished from 50.000 pieces in 1898 to 19.593 in 1910. Many people opposed the government measures and as to the advantage of stocking the upper rivers, the opinions of experts differed. In 1906 a Royal Commission was therefore appointed to examine the salmon question and to decide on the course to be adopted. Many are of opinion that stocking the rivers in Germany is absolutely inexpedient, and aver that it should be done exclusively in this country. Besides the stocking in Germany as prescribed by contract, the "Nederlandsche Heidemaatschappij" at the instigation of experts, likewise since 1906 stocked our brooks and rivers with young salmon. The "Heidemaatschappij" is granted a subsidy of fl. 13,000 towards these experiments in salmon-rearing, having pledged itself to see to it, that every year a minimum of 2 million salmon-eggs is reared. The decrease in salmon is, however, no doubt largely due to the regulation of the rivers, increased navigation, and the pollution of the waters, and in Germany to the damming of rivulets and brooks by means of weirs, for industrial purposes.



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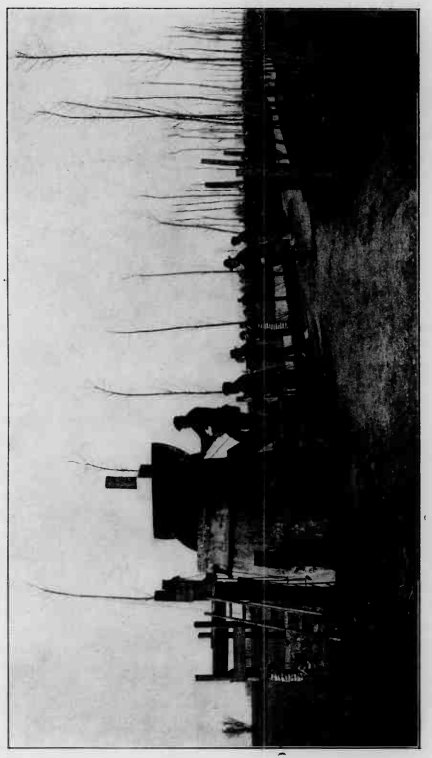

Tanning and mending of salmon-draguets.

For the Salmon-fishery the State rents the rivers in sections, and makes an annual income thereby of nearly *f* 25,000.

Since 1910 the number of salmon caught every year, has increased (except in 1914) but slightly.

1908.....	29,557 fish	fl. 778,658	yield.
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Shad, which used to bring in considerable profit, has fallen off even more than salmon. In 1885 184,179 shad were caught, in 1913 1,274. In 1914 there was a slight increase, the number being 1,678, and in 1915, 7,250.

SURVEY COVERING THE LAST FEW YEARS.

1908.....	39,562 fish	fl. 69,629	yield.
1909.....	49,819 „	„ 67,255	„
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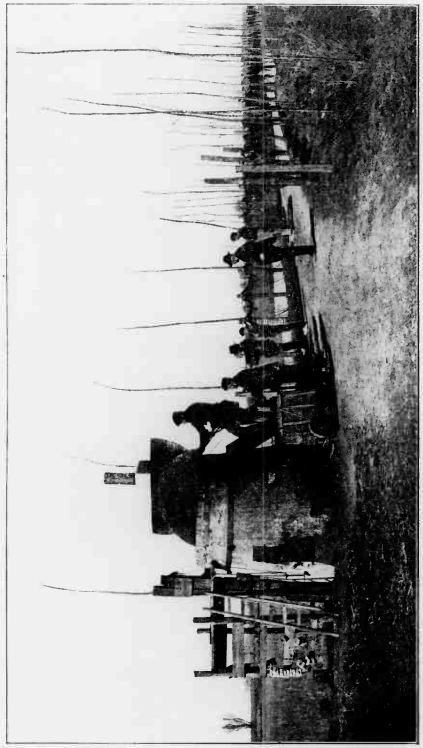
Other migratory river-fishes of some importance are sturgeon, fint, sea-trout and smelt.

b. INLAND-FISHING.

The main kinds of fish for inland-fishing are: eel, pike, perch, tench, carp, bream, roach.

As the regulations of the old law, covering both inland-fishing and the chase, left much to be desired, this fishing, mainly restricted to the retail trade, fell off more and more. The right of ownership of fishing-waters was insufficiently protected, no size-limit for fishes had been laid down, and the close seasons were only locally, and inadequately regu-



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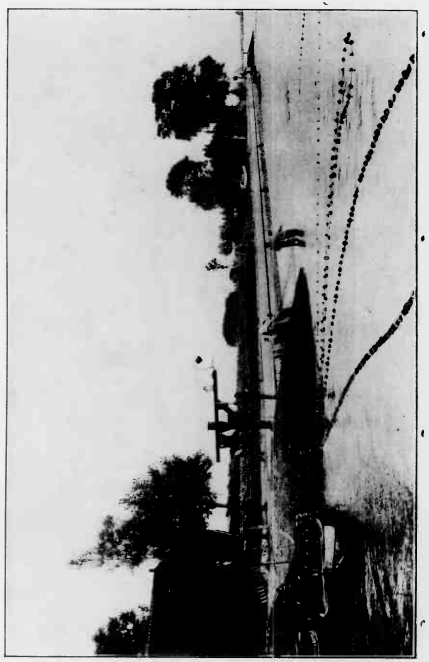


Handling of the salmon-dragnets.

lated. Every one fished when he liked, regardless of all rational exploitation of the fishing-waters.

The new Fishery Act, which aims at amending this state of affairs, is of great importance for inland-fishing. It brought protection to the fishes, and made regulations regarding the method of fishing. The Board of Inspection and Advice to Fishermen, also contributes greatly to the raising of the fishing-trade from its state of temporary decadence.

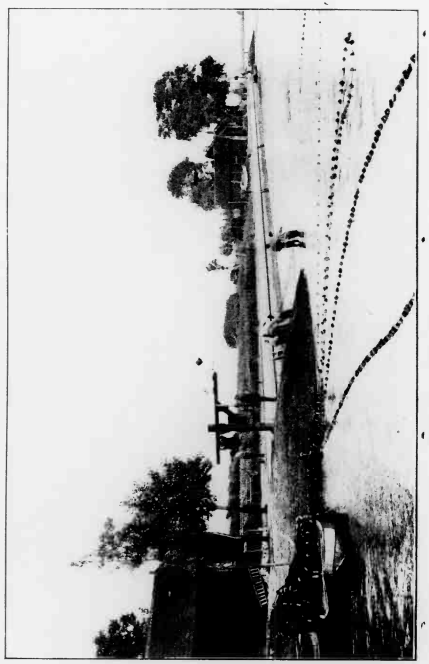
Until the new law came into force, the "Nederlandsche Heidemaatschappij", established originally for the reclamation of waste land, stood up for the interests of the fishing-trade and gained great credit by its attempts to organize inland-fishing.

It was under its guidance that the various branches, to a number of 88, were formed, united under one main section of the "Heidemaatschappij." The branches comprise 3900 members.

Through the medium of this Company, too, the "Cooperative Savings and Loan Bank for Inland Fisheries" was called into being, with the idea of inducing its members to save, and of providing loans, for the improvement of the fishing-trade.

The consumption of fresh-water fish in The Netherlands is inconsiderable, the greater part of the fish being destined for export, mostly to Germany, England, France and Belgium. In 1913 5,172,250 K.G. of fresh-water fish was exported: 1,287,365 K.G. to England (mostly eel), 1,899,517 K.G. to Germany, and over 2 million K.G. to Belgium and France. The figures for 1914 are as follows: Total export: 4,656,276 K.G., of which 1,872,633 K G went to Germany, 1,229,103 K.G to France and Belgium, 1,549,318 K.G. to England. To Belgium and France were exported enormous quantities of whiting, and they are sold there under the name of "friture."

For centuries past the export of eels to England has been carried on in the so-called eel-boats, which go direct from Friesland to England with cargoes of live eels. A unique privilege has been granted to these Netherlands eel-boats, which have an anchorage almost in the heart of



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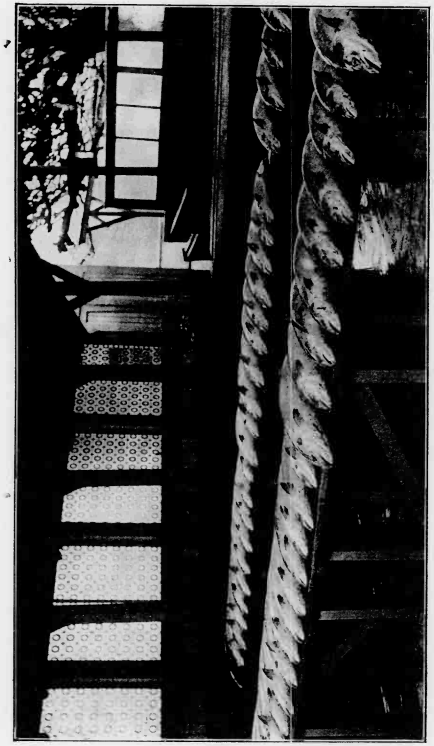

Salmon-market at Kralingsche Veer.

the metropolis. By virtue of an old concession granted by Queen Elisabeth, they are exempt from all tolls and harbour-dues, and are allowed to anchor between Billingsgate, London's main fishmarket, and the Tower. The privilege expires as soon as there are less than three of these craft moored to the banks of the Thames.

Inland fishing is only allowed by licence, except angling. For the season 1913—1914 30.298 licences were issued, of which 14.000 were large licences for the fishing with all kinds of warranted fishing tackle and 16.000 small licences. No trade is so popular as fishing and apart from a rather important number of professional fishers, who mostly earn a poor livelihood, many people practise fishing, especially with the rod, as a kind of sport or for amusement. The angling sport is a preeminently Netherlands sport. Every boy who can hold an angle, every private gentleman, every workman or businessman takes pleasure in fishing in the inland waters and gains vital strength by this sport to which all classes of the population indulge.

It is evident that especially under the old Act which did not sufficiently protect the fishing rights, conflicts could not be missing and that the rent-paying fisher did not love to see the amateur-fisher who caught the fish without bearing charges and who did not trouble about the exploitation of the fish-water.

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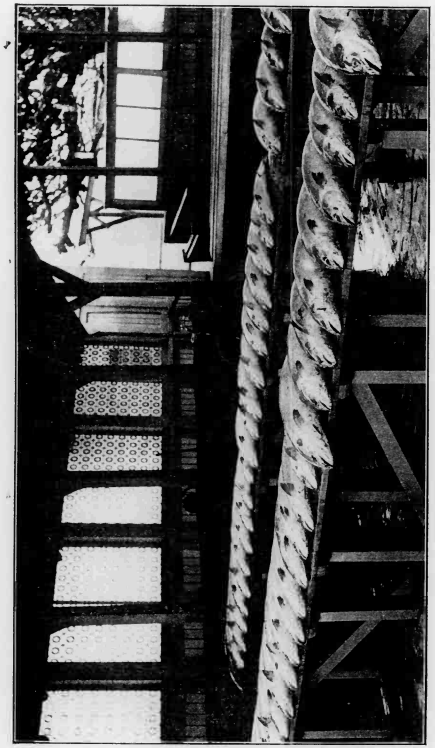
In concluding our survey, it will be well to refer briefly to the by-trades, which, though not falling under the actual fisheries, are yet closely connected with them.

I. FISH-REARING AND POND-CONSTRUCTION.

Fish-rearing bears a close relation to the efforts that are being made to secure an abundant supply of fish in inland waters. The "Nederlandsche Heidemaatschappij", which receives an annual subsidy of fl. 4000 for the promotion of the fisheries, owns some land near Vaassen on the Veluwe, where great numbers of fish are reared, to be deposited, in



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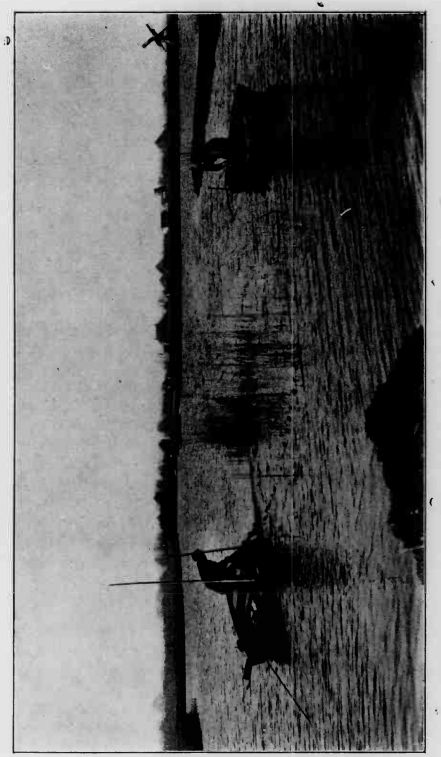


Fishing with a draguet near Westzaan.

some cases free of charge, in public waters. These are mostly carp, tench and various kinds of gold-fish, while of late years perch and pike have been included.

Near Vaassen and in Arnhem the "Heidemaatschappij" possesses breeding-stations where salmon, trout and grayling are also reared. In order to counteract the decline of salmon-fishing the brooks of the Veluwe and Limburg are stocked with young salmon 6 weeks, 2, 3, 5, 6 or 9 months old, which, as a means of recognition, have been deprived of the adipose fin.

The trout-trade, carried on by the "Heidemaatschappij", at the "Zwaanspreng" near Apeldoorn, and by a few other institutions, shows a constant increase.

Pond-construction. By way of reclamation fish-ponds are constructed on certain level stretches of moorland, mainly for the rearing of carp, for export to Germany. The establishment of Messrs. VAN BEST BROS at Valkenswaard, and those at Heeze and Nederweert are the most widely known.

II. THE FISH-SMOKING TRADE.

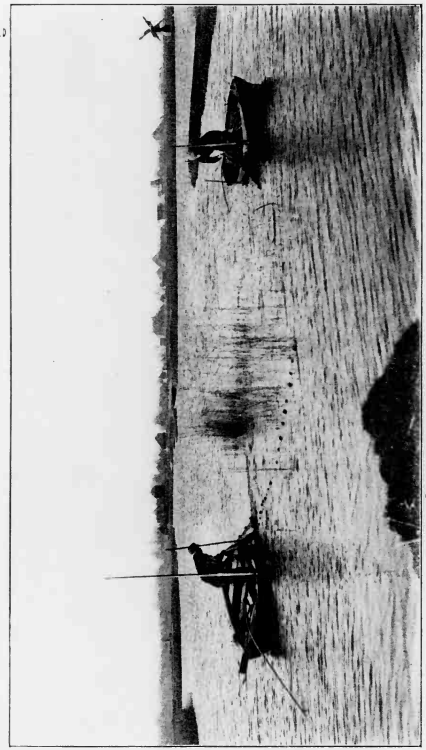
This trade is carried on along the Zuyder Zee coast; some towns on the North Sea, e. g. Katwyk, Noordwyk, Vlaardingen and Scheveningen have smoking-sheds also. The most important of them, however, are to be found at Huyzen (for the export-trade), Spakenburg, de Lemmer, Kampen and Elburg.

Harderwyk, Monnikendam, Harlingen and Volendam possess minor establishments.

Bloaters, or smoked herrings, are the principal article of this trade. According to the method of smoking and the quality of the herring we distinguish between:

a. fresh bloaters, for frying; (Zuyder Zee-herrings, lightly smoked and unsalted); they constitute one of the most common articles of consumption in The Netherlands.

b. hard bloaters, salted North Sea bloaters, (the so-called sturgeon-herring), smoked for a considerable length of time over a smouldering fire so as to keep them hard.



Fishing with a dragnet near Westzaan.

some cases free of charge, in public waters. These are mostly carp, tench and various kinds of gold-fish, while of late years perch and pike have been included.

Near Vaassen and in Arnhem the "Heidemaatschappij" possesses breeding-stations where salmon, trout and grayling are also reared. In order to counteract the decline of salmon-fishing the brooks of the Veluwe and Limburg are stocked with young salmon 6 weeks, 2, 3, 5, 6 or 9 months old, which, as a means of recognition, have been deprived of the adipose fin.

The trout-trade, carried on by the "Heidemaatschappij", at the "Zwaanspreng" near Apeldoorn, and by a few other institutions, shows a constant increase.

Pond-construction. By way of reclamation fish-ponds are constructed on certain level stretches of moorland, mainly for the rearing of carp, for export to Germany. The establishment of Messrs. VAN BEST BROS at Valkenswaard, and those at Heeze and Nederweert are the most widely known.

II. THE FISH-SMOKING TRADE.

This trade is carried on along the Zuyder Zee coast; some towns on the North Sea, e. g. Katwyk, Noordwyk, Vlaardingen and Scheveningen have smoking-sheds also. The most important of them, however, are to be found at Huyzen (for the export-trade), Spakenburg, de Lemmer, Kampen and Elburg.

Harderwyk, Monnikendam, Harlingen and Volendam possess minor establishments.

Bloaters, or smoked herrings, are the principal article of this trade. According to the method of smoking and the quality of the herring we distinguish between:

*a. **fresh bloaters***, for frying; (Zuyder Zee-herrings, lightly smoked and unsalted); they constitute one of the most common articles of consumption in The Netherlands.

*b. **hard bloaters***, salted North Sea bloaters, (the so-called sturgeon-herring), smoked for a considerable length of time over a smouldering fire so as to keep them hard.

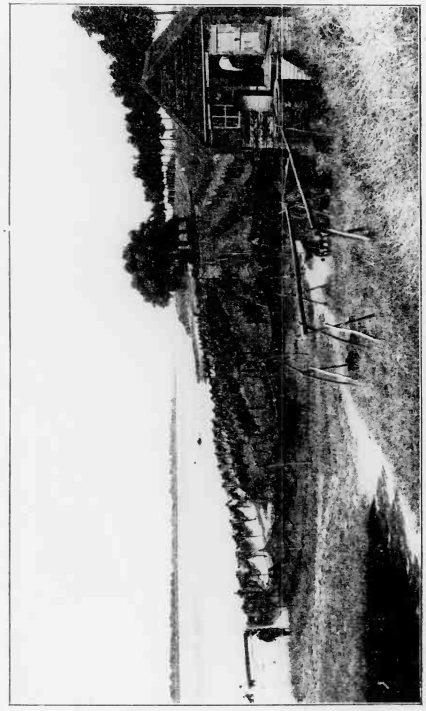
Drying of nets near Gorinchem.

c. *steamed bloaters*, salted and boiled over a hot fire.
d. the so-called "*bacon-bloaters*", herrings from Norway, prepared and smoked like hard bloaters.

When the herring-season is over, these smoking-sheds are used for other kinds of fish also, e. g. mackerel and smelt.

Fishing with squarenet.

Eel. Smoked eel is a favorite dish, and of great importance alike for home-consumption and for export. The smoking is done all over the country.



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Salmon and Shad-Smoking-sheds. Of course these are mostly found on the lower waters of the larger rivers, e. g. at Gorinchem and Kralingsche Veer. Besides the home-product, they smoke also American salmon, which is imported salted.

III. FACTORIES FOR FISH PRESERVES.

Mostly retail-trade, herring and eel.

IV. SALT FISH.

Cod, ling, halibut etc., are salted as soon as they are caught, on board the boats.

In close, though not immediate relation to the Fishery-trade stand:

a. the shipbuilding-yards at Vlaardingen, Leyderdorp, Maassluys and Scheveningen.
b. the net-factories and the cotton-yarn mills at Goor, Leyden, Apeldoorn, Sneek, Scheveningen and Gouda.
c the sail-yards at Maassluys, Vlaardingen, Scheveningen and Katwyk.
d. the cooper-shops, especially in the herring-towns of Vlaardingen, Maasssluys, Rotterdam and Scheveningen.
e. the tan-yards and net-mending works.
f. the ice-factories in the principal fishing-towns.
g. the trade in salt and its import from Lisbon and the Mediterranean.

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